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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/445,423	12/10/1999	KAZUO HATA	2839-0072-0	9913
22850	7590	04/21/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			FERGUSON, LAWRENCE D	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/445,423	HATA ET AL.
	Examiner Lawrence D Ferguson	Art Unit 1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 January 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 5-12 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment mailed January 20, 2004.

Claims 1-4 and 13 were cancelled and claims 5, 7, 9-10 were amended rendering claims 5-12 pending.

Claim Rejections – 35 USC 102(e)

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 5-6 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeuchi et al. (U.S. 5,955,392).

Takeuchi discloses a method for making a ceramic green sheet comprising ceramic particles having a spherical diameter of 0.01-0.5 μ m (column 2, lines 1-20 and column 3, lines 34-40) where the ceramic green sheet may be laminated with other green sheets and fired (baked) simultaneously (column 6, lines 8-10) provided a green sheet sandwiched between two green sheets, which are calcined (column 8, lines 19-21). Takeuchi discloses it is possible for the surface of the ceramic sheet to have 1

defect on the surface (column 4, lines 3-10), which meets the claim limitation of having not more than 5 defects in an area of 900mm² from the first green sheet. The reference discloses the spherical ceramic particles are greater than eighty weight percent (column 7, lines 12-15).

Claim Rejections – 35 USC § 103(a)

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. (U.S. 5,955,392).

Takeuchi is relied upon for claim 5 as above. Takeuchi does not disclose the spherical ceramic particles having a ratio of major axis relative to a minor axis of 1 to 3. Because Takeuchi has a ceramic green sheet with equivalent materials as the claimed invention, it would have been expected for the major and minor axis of the spherical ceramic particles to be the same as Applicant claims.

Claim Rejections – 35 USC § 103(a)

6. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. (U.S. 5,955,392) in view of Kazuo et al. (JP 8151271).

Takeuchi is relied upon for claim 5 as above. Takeuchi does not disclose the spacer (second calcined green sheet) being porous. Kazuo teaches a ceramic sheet obtained by placing the green sheet on or between porous sheets (abstract, lines 4-8) and firing the green sheet to the ceramic sheet (abstract, lines 9-11). Takeuchi and Kazuo are analogous art because they are both directed to multilayer ceramic green sheets. It would have been obvious to one of ordinary skill in the art to include the outer green sheets of Takeuchi as porous layers to improve baking the ceramic sheet so the green sheets will not protrude over (abstract of Kazuo).

7. Claim 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments to 35 USC 103(a) being unpatentable over Osaka et al. (U.S. 5,057,360) has been fully considered and the rejection has been withdrawn because Osaka did not teach the second green sheet comprising spherical ceramic particles having an average particle diameter of 0.1 to less than 5 micrometers as a main component.

Applicant's arguments to 35 USC 103(a) being unpatentable over Kazuo et al. (JP 8151270) are moot based on grounds of new rejection. Applicant's arguments to 35 USC 103(a) being unpatentable over Kazuo et al. (JP 8151271) are moot based on grounds of new rejection.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-

272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Lawrence D. Ferguson
Examiner
Art Unit 1774

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

